Evolutionary Psychology in the Context of Mental Illnesses

Charles Darwin's publication of *On The Origin Of Species* and its theories of evolution would radically change the landscape of science forever. One area of study that is certainly not exempt is that of psychology. Evolutionary Psychology has become a prominent way of thinking within its field. Described in the *Stanford Encyclopedia of Philosophy,* Evolutionary Psychology seeks to explain human behavior through a lens of adaptationism, the belief that most, if not all, of the functions of the brain were developed through natural selection, due to the ability of those traits to increase reproductive success. Another core tenet of Evolutionary psychology is Modularity. Modularity is the theory that our brain has many different modules of thinking which all address different situations and problems. Proponents of Evolutionary psychology believe that understanding these modules can help explain human behavior, including mental illnesses (Downes). However there are psychologists who disagree with an evolutionary approach, Ryan Tweney, a Professor in the Department of Psychology at Bowling Green State University, brings up concerns of evolutionary theories ignoring alternative theories and not providing enough evidence to support its claims (Tweney). This paper is an examination of the claims of both sides of this debate within the context of the mental disorders, PTSD and Schizophrenia. Ultimately, evolutionary psychology is an invaluable tool for finding the root reasons for these disorders' existences, as well as a potentially extremely useful one for helping to diagnose and treat these illnesses.

PTSD (Post Traumatic Stress Disorder)

In the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) PTSD is described as a condition that arises when an individual endures “exposure to actual or threatened death, serious injury, or sexual violence”, this exposure can be indirect, e.g learing of the event happening to a family member (Center for Substance Abuse Treatment (US)). David Baldiwn, a Licensed Psychologist for the University of Oregon, points out in his paper that PTSD has been recognized in the past under many different names. Most often these are in conjunction with war, “Soldier's Heart” in the civil war, “Shell Shock” in WW1 and “Traumatic Neurosis” in WW2 (Baldwin). The question which needs to be answered is, how can these conditions which are clearly disorders in a modern context help to increase an individual's chance of survival in premodern contexts? Liana Zanette, a professor in the Department of Biology at Western University, shines a light on this issue when she posits that retaining a strong memory of predation events would help an individual avoid predation in the future (Zanette et al.). As for the disorder aspect of PTSD, it is important to keep in mind that in evolutionary contexts the survival of an individual is more important than that individual's quality of life.

Fear responses similar to PTSD have been observed in animals as well. In a study, which professor Zanettte helped to conduct, wild chickadees were exposed to predator vocalizations, housed outside for 7 days, then exposed again to the predator vocalization to observe any PTSD like changes in behavior. Individuals who were exposed to the first predator vocalization demonstrated a “6 fold increase in time spent vigilant and imobile” when compared to the individuals who were exposed to non predator cues the previous week. They also demonstrated an significant increase in relevant activity in the amygdala and hippocampus, (the areas of the brain dedicated to fear and memory) (Zanette et al.). These results demonstrate that PTSD does indeed have roots in evolution as even wild animals display behaviors and biological indicators indicative of PTSD. As well as supporting the connection between PTSD like responses and predation events.

However there are still questions about how much of PTSD responses can be attributed to evolution and how much are culture based. One cross-cultural study which sought to answer that question was a collection of over 200 interviews of Turkna people (a tribe of pastoral warriors from Kenya) who were questioned about symptoms of PTSD that originated from lethal cattle raids, then compared those responses with those of American combat veterans. The study broke up the symptoms into categories of learing, reacting, depressive, mixed, and other. Learning responses include symptoms such as flashbacks, cued distress, and cued physical reactions. Reacting responses include hypervigilance and enhanced startle response The depressive category describes the comorbid symptoms of PTSD and Depression, these include loss of concentration, detachment or estrangement from loved ones, irritability, loss of interest in enjoyable activities, and others. The mixed and other categories describe symptoms that don't fit cleanly into one or any of the other categories. The study found that Turkana warriors experienced reacting and learning symptoms at a similar rate to the group of American combat veterans however the Americans experienced a higher amount of depressive symptoms. Depressive symptoms were positively associated with events that challenged the moral and cultural norms of whichever culture the interviewee was from. These violations are known as moral injury, i.e trauma caused by perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations. Turkana have a culture in which cattle raids are an established practice that is regularly sanctioned as an okay and even admirable thing to participate in. Due to this the Turkana receive less moral injury than Americans who have very strong social norms against killing in almost all forms (Zefferman and Mathew).The consistency of the Reactive and learning symptoms shows how PTSD is largely independent from culture. However the discrepancy between depressive symptoms does suggest that culture does indeed play a part in some of the intricacies of PTSD, which seems to prevent one from taking an entirely evolutionary perspective on PTSD. However a unique aspect of evolutionary psychology is that it often puts on display the core biological reasoning for seemingly social phenomena.

Evolutionary theory has suggested that depressive symptoms (as well as other emotions) have been evolved to help one during social situations that would be detrimental from an evolutionary perspective. For example in the book Good Reasons for Bad Feelings: Insights from the Frontier of Evolutionary Psychiatry by Randolph M. Nesse, a professor at ASU, describes a patient who came to him with anxiety about his girlfriend cheating on him despite him believing there is no evidence of an affair. However when questioned by a therapist he revealed that his girlfriend spends a large amount of time with a particular guy friend. While the boyfriend may not consciously think his girlfriend is cheating, his anxiety is a subconscious evolved response to seeing a “mate” with competition (Nesse). That is to say that the evolutionary perspective allows us to examine the core causes of a disorder i.e fear of social sanctioning due to moral injury rather than the symptom i.e withdrawal, low concentration, or rumination. This provides psychiatrists an extremely valuable tool in trying to help understand the core issues of their patients, thereby helping them to overcome their illnesses easier and more completely. Relating this back to the Turkana study, the study demonstrates that does due to fear of ostracization because of violations of cultural norms (something that would certainly be evolutionarily disadvantageous) results in depressive symptoms that seek to address that scenario

Schizophrenia

Schizophrenia is a unique case when it comes to evolutionary theory, Schizophrenia is described in a 2019 article, on Schizophrenia Risk Alleles, as a highly heritable condition that has been shown to reduce the fertility of those who suffer from it. Along with reduced fertility schizophrenics have been shown to have fewer grandchildren than average. (Liu et al.). This combination means that schizophrenia, due its overall reduction in reproductivity in the people which suffer from it, should have disappeared from the human genepool a long time ago. However this certainly has not stopped scientists from examining schizophrenia from an evolutionary lens, which has resulted in a handful of theories.

The one theory to be proposed was that schizophrenia was a by-product of human cognition and social lifestyles. The theory goes that human ancestors would have benefited from the Schizotypal even Schizophrenic traits associated with Schizophrenia due to increased the creative and original thought which has been tied to those traits (Kaufman and Paul). However modern humans, who have completely developed their language and cognitive abilities, no longer have a benefit from these traits, which results in disorder. A recent genome study compiled by researchers from the U.K, Australia, and Canada, has created a model based on genetic information from human ancestors. This model posits that schizophrenia risk alleles were positively selected for until 100,000 to 150,000 years ago, when humans developed beyond the need for the traits schizophrenia provides. (Liu et al.). This provides a great deal of backing for the previous theory.

A common root for Schizophrenia is further supported by the consistency of cross cultural symptoms. As Rober Sapolsky, a Stanford psychology professor, says during a lecture, Schizophrenics symptoms will be different as depending on the culture for example schizophrenics from western cultures most commonly attribute their auditory hallucinations to Jesus and Satan (Stanford). However this superficial difference is undertoned by a consistency in how the symptoms relate to the culture of the patient. Which he relates to the class in an anecdote about an experience with someone who was likely schizophrenic from an African tribe called the Masai. Essentially this woman had an episode in which they killed a goat, which is a taboo for women to do in this tribe. In a later talk with other members of the tribe they told him that she “heard voices at the wrong times”(Stanford). Essentially it can be consistently found that schizophrenics exhibit thinking that is “abnormal” in the context of their own culture. Once again demonstrating the commonalities in disorders regardless of culture, suggesting an evolutionary origin.

Treatment

The large amount of evidence supporting the use of the evolutionary perspective in finding the origins of mental disorders is clear. As Zachary Durisko explains in his article *Using Evolutionary Theory to Guide Mental Health Research* the human brain is a product of evolutionary selection and understanding how those relate cna be extremely enlightening (Durisko et al.) . However the question of use in more practical and pragmatic scenarios of treatment and diagnosing is less certain

An important implication of evolutionary theory is that conditions that manifest in modern times as disorders were at one point, adaptive and share a common root across all cultures. This means that psychiatrists should take care when diagnosing patients to understand how their patients mind is affecting them, independent of cultural biases. Alfonso Troisi a researcher from the University of Rome in Italy, in his article *The evolutionary diagnosis of mental disorder* gives an alternate frame with which to define a mental disorder as a "harmful dysfunction ", where harmful refers to the social context of someones disorder and how it hurts them in the context of their cultural norms, while the dysfunction refers to the failing of the bodies natural mechanisms to perform its biologically intended function. This perspective carries many implications, as those with mental disorders often see themselves as "at fault" for their disease and conveying the fact that these disorders are simply natural human reactions that are no longer adaptive (due to the quick development of humanity). This could improve the mental state of many people with these disorders making treatment easier and less painful.

Conclusion

The viability of the evolutionary perspective in the contexts of PTSD and schizophrenia bodes well for the use of the perspective in a wide range of other contexts. From other disorders to social psychology, evolutionary theory has a place. Furthermore current psychiatry treatments have yet to fully adapt to the use of the evolutionary perspective due to how relatively recent these studies are. This makes it important that educators and medical institutions take an interest in these developments in order to prepare future therapists, psychiatrists and psychologists to better understand and treat mental disorders

Word Count: 2000

Works Cited

Works Cited

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